Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D. C. 20554

In the Matter of	)	
	)	
2018 Biennial Review of	)	WT Docket 18-374
Telecommunications Regulations	)	

COMMENTS BY P. RANDALL KNOWLES
CONCERNING THE GENERAL MOBILE RADIO SERVICE (GMRS)

These Comments are directed to the *General Mobile Radio Service* (GMRS, FCC Rules and Regulations. Part 95, SubPart E). This writer has over 48 years experience as a GMRS user and repeater operator. Over those years I've utilized GMRS in some 40 states of the union, including Hawaii, as well as Puerto Rico and the U. S. Virgin Islands. From 1976 – 1978 I was a member and Task Coordinator of the Commission's *Personal Use Radio Advisory Committee* (PURAC). I was a founding member of the *Personal Radio Steering Group* (PRSG) and I participated extensively in the last Commission proceeding concerning GMRS, WT Docket 10-119. In that Docket I filed *Comments* and *Reply Comments* as well as made two *ex-parte* presentations.

Several Rule sections need prompt review by the Commission in this *Biennial Review* with respect to three current major GMRS issues: (1) Repeater "***linking***" via Internet remote and automatic control, (2) clarification of automatic control limitations, and (3) equipment certification.

Repeater Linking. As the march of technological development continues, GMRS operators have not been blind to new capabilities as a result. Applications utilizing the *Internet* now make it possible to "***LINK***" GMRS repeaters. Thus, for example, one person, using a low-power

GMRS hand-held portable radio ("walkie-talkie") not only causes operation of the local repeater for whom he is authorized, but also, simultaneously, numerous **OTHER** repeaters at **OTHER** locations and also on **OTHER** frequencies. Some of these "*linked*" GMRS repeater networks combine a substantial number of participating repeaters, ***in many different states***, and on ***many of the different 8 GMRS repeater channels***. Operation on any one of the repeaters automatically simultaneously causes full operation of **ALL** of the "*linked*" repeaters. I've heard specifically of a "linked" GMRS repeater network that claims to now have coverage in 5 different states. In theory, at least, it's potentially possible for such a "*linked*" GMRS repeater network to cover **all 8 of the available GMRS repeater channels** over however wide an area can be managed.

This is not a secret, one has only to look at published information on the Internet at, for example, https://mygmrs.com/networks. And https://link.mygmrs.com/map has a real time map showing "*linking*" that is currently in progress.

"Linking" prohibited by FCC Rules and Regulations. Since 1983 Part 95 has specifically prohibited such repeater "*linking*". Over 35 years ago the Commission banned "Messages which are both conveyed by a wireline control link and transmitted by a GMRS station".[1] The Commission, in 2017, recently "declined to change or clarify the rules regarding network connections in the GMRS Rules" or "to delete the GMRS prohibition on messages that are both conveyed by a wire-line control link and transmitted by a GMRS station."[2] Following the WT Docket 10-119 changes, the FCC Rules and Regulations continue this exact prohibition in §95.1733(a)(8). Also note that the new Rules, in §95.1749, apply to both "the public switched network ***or other networks***" (emphasis added). Careful examination of the Rules and Regulations and expressed in-

[1] in 1983's §95.181(i)(13)
[2] Report and Order WT Docket 10-119, ¶8

tention of the FCC mandate the inescapable conclusion that GMRS repeater "*linking*" has been prohibited since 1983 and continues to be so banned to this day.

Confusion in the GMRS community. Despite the above, a purported communication from "FCC Licensing Support Staff" has clouded the issue. This letter is widely circulated in the GMRS community on the Internet and gives an opinion that GMRS repeater "*linking*" is **NOT** banned by the Rules and Regulations. Case ID given in the letter was HD0000002998556. If, in fact, this letter is legitimately from FCC staff, as many apparently believe, it is truly unfortunate and has greatly promoted more "*linking*" in GMRS. **Further clarification from the Commission is urgently needed to resolve this apparent dichotomy.**

Negative effects. GMRS has very limited spectrum to provide for personal radio communications capability for the American public. There are only 8 repeater channel pairs. The service has, since its inception, required careful sharing of its channels, and "operators of Personal Radio Service stations must cooperate in the selection and use of channels in order to avoid interference and make efficient use of these shared channels."[3] GMRS repeater "*linking*" violates both the letter and spirit of these requirements. Consider that a lone portable user, listening before transmitting in his local area has no idea of conditions on other channels and in other areas. He may know if the "*linked*" repeaters elsewhere are currently in use, but he has no idea about **anyone else** currently using frequencies elsewhere but not on the repeater that is "*linked*". The potential that one or more of the "*linked*" repeater channels is in use by someone else in that locale is very substantial, if not all too probable. And, of course, the more systems that are included in the "*linking*" the more exponentially the probability of interference increases.

[3] See §95.359.

A fellow GMRS operator and repeater owner in my area[4] describes the problem thus: "[*linked*] users are transmitting 'blind' across multiple areas and frequencies". He points out that *linking* "negates their users' ability to monitor the channels … to prevent co-channel interference" and "the stations being interfered with may be unable to notify the interfering stations due to lack of access to the network." He also observes that "if two or more users are communicating locally via a local repeater" that is *linked* they're also being simulcasted "across multiple repeaters and … channels" and locales needlessly when the local repeater is fully sufficient without *linking*. This is wasteful of spectrum and promotes vastly greater interference, which as previously mentioned, is in direct violation of §95.359. He feels, and I concur, that *linking* more appropriately belongs in the Amateur Radio service ("experimental by design"), where it is already prevalent and where user coordination of repeaters is well established, unlike GMRS.

Of course, emergencies have absolute priority in GMRS as in other radio services in the United States.[5] GMRS is also used extensively for traveler assistance and a common national subaudible tone for facilitating this traditional operation was adopted by custom and usage nearly 40 years ago.[6] **The high potential for users who are transmitting "*linked*" ("blind") to cause interference to emergencies and traveler assistance communications must continue to be banned.** Similar reasoning by the Commission was recently employed in Docket WT 10-119 in barring scrambling in GMRS.[7]

Specific Rule Sections Involved. §1745, Remote Control, should, at the very least, include a refence to §1733(a)(8) prohibiting "*linked*" messages. **Any ambiguity that §1749, concerning network connections, applies to and includes the Internet should be clarified. Better still would be specific language that GMRS "*linking*" is prohibited, whether by Internet**

[4] Matt Siegel, WQDY 295
[5] See §95.1731(a)
[6] 141.3 Hz
[7] R & O, WT Docket 10-119, ¶4

or any other wireline means. Section 95.1745, Remote Control, might be the most appropriate place for such language.

Potential Exception. All of the above does not mean that I am opposed to any application of new technology capabilities to GMRS. I have long favored repeater "*fill-in*" *coverage* by remote receiver linking. In fact, I utilized the Experimental Radio Service in the late 70's to test such a system with my GMRS repeater.[8] Carefully limited application of this technology would avoid the negative effects that I cited above for *repeater linking*. "*Receiver fill-in linking*" should not permit any remote *transmitters*. But *linking* only of GMRS *receivers* within the normal coverage range of the GMRS repeater transmitter would be a significant enhancement to the service. Such provisions must bar *extended* coverage, but should facilitate *fill-in* coverage to fully and completely receive within all of the GMRS repeater transmitter range, especially from portable units. GMRS repeaters are typically not on the tallest buildings or towers as the cost for the same is prohibitively high, usually far beyond the financial ability of individuals, or even typical user cooperatives. This is a limiting factor on GMRS system coverage, but application of *remote receiver fill-in linking* would go a long way to mitigate this limiting factor while avoiding the negative effects cites above for *full repeater linking*.

For example, my own GMRS system has a remote receiver site ready to go and could implement *fill-in coverage* of a radio "shadowed area" adjacent to the shore of Lake Michigan immediately if receiver connection by the Internet were authorized.

Automatic Control. GMRS has, since its creation, required a person at a "control point" to be in charge of the station whenever it transmits. This has been a fundamental tenet of the Rules and Regulations consistently for over 70 years and is currently found in §95.343. But §95.1747, automatic control, is a major departure from this long-standing basic principle. While

[8] License KK2XHV

the Report and Order in WT Docket 10-119 made it clear that this was intended to be very strictly limited,[9] the new Rules and Regulations fail to limit this new and major exception whatsoever. It appears that the Commission authorized Automatic Control in order to facilitate the Garmin proposal as delimited in the Report and Order[10] and new §95.1787. But the authorization of automatic control in §95.1747 is unequivocal and totally unlimited. At the very least §95.1747 should reference §95.1787 and be strictly confined to all limitations set out in that section and the Report and Order, whether transmission is digital or not. Failing to clarify this issue gives rise to all sorts of horrifying imaginings that I'm sure the Commission had no intention of promoting.

Equipment Certification. Following 1958, when the Commission reallocated almost all of the original GMRS spectrum (the entire 460-470 MHz band) with the creation of the Business Radio Service and others, GMRS has been a subset of the land mobile radio equipment market. For many years this was not a problem as UHF land mobile equipment was routinely "type accepted" for both Parts 90 and 95A (GMRS). But things have changed. With the new "narrow-banding" of most Part 90 services, GMRS is no longer automatically included by major vendors of land mobile radios in the U.S.

Certification is desirable and in the best interests of GMRS users, and the GMRS community has work to do to get manufacturers to certify their equipment also for Part 95. However, in this regard we can use help from the Commission in limiting the expense to do so. Typical equipment now depends on programming for operating parameters. Almost all such software is capable of configuring also for the "wide-band" specifications of GMRS. Where testing data submitted in connection with Part 90 already establishes conformance with Part 95 requirements

[9] See R & O, ¶7
[10] R & O, WT Docket 10-119, ¶7

surely there should be some simplified procedure to add such certification. Where additional data is required what can be done to limit the expense of the same and maximize reliance on testing data already on file?

For example, I recall a procedure years back where a GMRS licensee could request "individual type acceptance" of equipment as a special condition of his license based upon existing data already on file with the Commission. **Hopefully additional language can be added to §95.1761 to facilitate this goal and promote compliance with certification provisions.**

I believe this addresses the major issues confronting GMRS today. I thank you in advance for your time and attention.

Respectfully Submitted,

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